Docket No.: 0826.1791

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of:

Nobuyuki NEMOTO et al.

Serial No. 10/078,488 Group Art Unit: 2633

Confirmation No. 4891

Filed: February 21, 2002 Examiner: Agustin Bello

For: CONTROLLING SYSTEM FOR USE WITH VARIABLE ATTENUATORS

REPLY BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

In the Examiner's Answer mailed July 18, 2006, the Examiner withdrew the rejection of claims 4, 5, 9 and 10 for obviousness over Ford and Minamimoto, indicated that claim 4 would be allowed if put into independent form and if the 35 USC 112, § 2 rejection were overcome, and indicated that claims 5, 9 and 10 were allowable if put into independent form. The Examiner maintained the rejection of claim 4 under 35 USC 112, §2 as indefinite, maintained the rejection of claims 3 and 8 under 35 USC 102(e) as anticipated by Ford, and provided a response to the previously presented arguments concerning these issues. The maintained rejections of claim 3, 4 and 8 are discussed below.

Rejection under 35 USC §112

The Examiner has asserted as a basis for maintaining the rejection of claim 4 that the Examiner cannot conceive that one skilled in the art would essentially have understood the claim to mean that which is stated in the Appeal brief at page 4, lines 4-7. In particular, the Appeal Brief stated (with claim text now added):

> Further, claim 4 clearly states that the attenuator amount ("the predetermined value of said variable attenuator") is set low ("is as low as an optical signal transmitted") but not so low that an abrupt signal input destroys a transmitter of the next stage in the transmission path ("an optical signal that is transmitted from the WDM transmitting apparatus corresponding to an abrupt optical input does not destroy a WDM transmitting apparatus disposed on the next stage") and so that and output level of the attenuator can be used by an optical detection unit to detect such an abrupt signal ("and as the output optical level detecting unit can detect an output optical level of the variable attenuator corresponding to the abrupt optical input"). It is submitted that claim 4 is clear and definite.

(Appeal Brief, page 4, lines 4-7, with claim text added)

The passage of the Appeal Brief noted by the Examiner and admitted to be understood by the Examiner has been reproduced above with the language of claim 4 inserted into the characterization in parenthesis and with quotation marks. As demonstrated above, claim 4 clearly states what the "applicant regards as the invention". Reversal of the rejection is respectfully requested.

Rejection under 35 USC §102(e)

First, the Examiner at the bottom of page 6 of the Examiner's Answer is mischaracterizing the applicants argument. To clarify, Ford states:

> The adjustable optical transmission unit is (1) responsive to the enable signal for adjusting the output signal level to a predetermined level and for generating the okay signal when the output signal level adjustment is completed, and (2) responsive to the absence of said enable signal for maintaining the output signal level at its existing level. The control signal monitor is responsive to the okay signal for outputting the output global control signal at a second state.

(See Ford, col. 2, lines 29-39)

This text says nothing about "when an optical signal component of a wavelength of the WDM optical signal is disconnected, the feedback circuit sets attenuation amount of a variable attenuator assigned to the optical signal component to a predetermined value" as recited in claim 3.

The Examiner still appears to be confusing the setting of an attenuation amount to a predetermined value of claim 3 with the Ford adjusting of an output level of an adjustable optical transmission unit to a predetermined level or its existing level.

On page 8 of the Examiner's Answer, the Examiner dismisses the argument presented concerning the difference between setting an optical signal level, as in Ford, versus the setting on an attenuation amount as recited in claim 3. The Examiner does this essentially because the Examiner considers the analogy argument using the equation V=IR to be incorrect or not to hold. In fact the analogy does hold. As noted above, claim 3 calls for the attenuation amount to

be set to a predetermined value when the signal is disconnected. In the optical field, when an attenuation amount is set to a predetermined value and a signal is transmitted there through, the signal power level out varies with the signal power level in as set forth in the equation:

$$\text{Attenuation (dB)} = 10 \times \text{Log}_{10}(\text{Pin/Pout}) = 20 \times \text{Log}_{10}(\text{Vin/Vout})$$

(See Introduction to Optical Fibers, dB, Attenuation and Measurements, CISCO at http://www.cisco.com/en/US/tech/tk482/tk876/technologies_tech_note09186a008011b406.shtml)

As previously discussed, Ford sets a signal level. In particular, Ford adjusts the output signal level to a predetermined level or maintains the output signal level at its existing level. That is, the level is controlled. Controlling the level, in accordance with the equation set forth above, requires that the attenuation vary. This is the opposite of what is called for in claim 3. That is, as noted in the Appeal Brief, Ford teaches away from claim 3 ("when an optical signal component of a wavelength of the WDM optical signal is disconnected, the feedback circuit sets attenuation amount of a variable attenuator assigned to the optical signal component to a predetermined value").

The Examiner particularly alleges that adjusting the output signal level "is the same" as adjusting an attenuation amount (see Examiner's Answer, page 7). However, the Examiner appears to be ignoring the fact that claim 3 calls for not just setting ("sets") the "attenuation amount" but setting it to a "predetermined value". Ford does not teach or suggest such. Rather Ford teaches constantly varying the attenuation to adjust the output signal level to a predetermined level or maintain the output signal level at its existing level. As noted above, adjusting the signal level the way that Ford does requires that the attenuation itself vary, not be set to a predetermined value.

More concretely with respect to claim 3, assume that the attenuation amount predetermined value is set to 16dB (a relative value that is a ratio of the input optical power and the output optical power). In such a case if a light is applied to the attenuator input of 0dB, the light output level from the attenuator would be -16dB. If a light of -10dB is applied the output level would be -16dB. The output level is dependent on the input level. In contrast, according to Ford if the output level is set to a predetermined level or existing level of -20dB (an absolute value, that is, the value of the optical power) and a light of 0dB is input to the adjustable optical transmission unit, the unit provides a loss of 20dB, making the output level -20dB and when the input light is -10dB, the adjustable optical transmission unit provides a loss of 10dB resulting in an output level of -20dB. As a result, in Ford, the output level is not dependent on the input level. The technique of claim 3 in setting the attenuation amount to a predetermined value is

very different from the technique of Ford in setting an output level to a predetermined or existing value.

Further, as discussed in Ford at col. 5, line 39+ with respect to figure 3, the level control of Ford controls the level of all of the WDM wavelengths at the same time:

> With reference to FIG. 3, there is shown an illustrative block diagram of a generalized automatic level control circuit in accordance with the present invention. The generalized automatic level control circuit is used in the node of FIG. 3 and basically includes a generalized adjustable transmission unit 300 for adjusting the power level of the WDM wavelengths being transmitted through the unit and a control bit monitor/controller 309 which enables the adjustable transmission unit 300 when the control bit is received. Note, the generalized adjustable transmission element 302 may be implemented using an adjustable preamplifier 202 (or amplifier 206), an adjustable filter/equalizer 203, or an adjustable attenuator 205 of FIG. 2. Thus the adjustable element 302 could be an amplifier 202, 206 where the gain is controlled (e.g., by pump laser intensity), a variable attenuator 205 which adjusts all WDM wavelengths simultaneously, a gain-tilting attenuator internal to an amplifier, or a spectral equalizer 203 (e.g., having an individual attenuator for each wavelength). Each of these type of elements 302 would operate under control of the comparator 306. In the following example, we assume that the adjustable transmission unit 302 includes an adjustable amplifier or attenuator for controlling the power level of the WDM signal .lambda.1-.lambda.n.

(See Ford, col. 3 lines 38-60, underlining emphasis added).

Ford indicates that the embodiment of figure 4, which the Examiner references on page 4 of the Examiner's Answer, operates in the same manner as the generalized automatic level control circuit of figure 3. That is, all the components of the WDM signal are adjusted simultaneously. In contrast, as discussed in the prior filed Appeal Brief, claim 3 calls for, when a disconnect occurs, the setting is of a predetermined attenuation of a "attenuator assigned to the optical signal component". That is, claim 3 calls for a component specific attenuation adjustment for a disconnected component, whereas Ford calls for an overall (all components) signal level adjustment. These are two completely different approaches. And Ford does not even suggest the approach of claim 3.

Further, claim 3 calls for operating in an environment where a disconnect of a component occurs ("when an optical signal component of a wavelength of the WDM optical signal is disconnected"). Ford says nothing about operating in such an environment. That is, Ford does not recognize much less solve the problem.

It is submitted that claim 3 is patentable over Ford and reversal of the rejection of claim 3 is requested.

Claim 8 recites ("when an optical signal component of a wavelength of the WDM optical signal is disconnected, the feedback circuit sets attenuation amount of a variable attenuator assigned to the optical signal component to a predetermined value"). Claim 8 is submitted to distinguish over Ford.

Reversal of the rejection of claim 8 is requested.

The idea behind or object of Ford is to provide level stabilization control to prevent destructive feedback oscillations, that is destructive oscillations upstream (see Ford, col. 2, lines 5-8) whereas the object of the present invention is to prevent the problem of downstream or next stage amplifier destruction caused by a signal surge discussed on page 11 of the application. These are two different problems requiring two different solutions. Ford does not teach or suggest a solution to the problem solved by the inventions of claim 3 and 8.

Reversal of the rejections of claim 3 and 8 for this additional reason is suggested.

It is submitted that claim 4 is definite and that independent claims 3 and 8 are not taught or suggested by Ford.

Respectfully submitted,

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